



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/645,125

08/21/2003

Daniel C. Birkestrand

ROC920030189US1

7107

46797

7590

06/24/2009

IBM CORPORATION, INTELLECTUAL PROPERTY LAW
DEPT 917, BLDG. 006-1
3605 HIGHWAY 52 NORTH
ROCHESTER, MN 55901-7829

EXAMINER

ZHE, MENG YAO

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

06/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/645,125	Applicant(s) BIRKESTRAND ET AL.	
	Examiner MENGYAO ZHE	Art Unit 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-13 and 30-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-13, 30-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/26/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-2, 4-13, 30-38 are presented for examination.
2. In view of the Appeal Brief filed on 3/16/2009, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below. To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid. A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-6, 8, 9, 30, 36, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over A case for Grid Computing On Virtual Machines, Fortes et al (hereafter Fortes) in view of Camble et al., Pub No. 2003/0135580 (hereafter Camble).

4. Camble was cited in the previous office action.

5. As per claims 1, 30, 36, Fortes teaches a method for expanding resource available to a first logical partition on a single computer associated with a client (Section 1. Introduction, Paragraph 4 that starts with "virtual machines present the image of a dedicated raw machine to each user..."; Section 4, step 1: note that the VM is instantiated on a single physical machine), the method comprising:

Associating one or more partition resources of the first logical partition with a grid, wherein the grid comprises grid resources that are available for use by a plurality of logical partitions associated with the grid (Section 2.2 Advantages, Security and Isolation, Resource Control; Section 3.2, subsection Application Perspective; Section 3.4: each VM is a logical partition and the provider has control over how much resource of the VM is available to the user based on its scheduling constraints; logical users correspond to a plurality of logical partitions associated with the grid);

Providing grid resources from the grid to the first logical partition based upon usage of the partition resource of the first logical partition (Section 2.2, Resource Control, 1st Para; Section 4, 2nd Para; Section 3.1, 2nd Para).

Fortes does not specifically teach providing on-demand resources to the first logical partition based upon the usage of the partition resources of the first logical partition and a usage of the grid resources, wherein the on-demand resources are available to the system, and access to the on demand resources is controlled by a manufacturer of the system.

However, Camble teaches providing on-demand resources to logical partitions based upon the usage of the partition resources, wherein the on-demand resources are available to the system, and access to the on demand resources is controlled by a manufacturer of the system (Para 26) for the purpose of purchasing additional resources.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Fortes with providing on-demand resources to logical partitions based upon the usage of the partition resources, wherein the on-demand resources are available to the system, and access to the on-demand resources is controlled by a manufacturer of the system, as taught by Camble, because it allows for the purchase of additional resources.

6. As per claim 2, Camble teaches comprising metering a usage of the on-demand resources by the client to determine a cost to assess the client (Para 26). Fortes teaches using grid resources among logical partitions (Section 2.2 Advantages, Security

Art Unit: 2195

and Isolation, Resource Control; Section 3.2, subsection Application Perspective; Section 3.4).

7. As per claims 4, Fortes teaches wherein associating the one or more partition resources of the first logical partition comprises enabling allocation from the grid resources to the logical partition (Section 2.2, Resource Control, 1st Para; Section 4, 2nd Para; Section 3.1, 2nd Para).

8. As per claim 5, Fortes teaches wherein associating the one or more partition resources of the first logical partition comprises registering with the grid at least a portion of partition resources associated with the first logical partition, to allow the portion to be allocated to the plurality of logical partitions associated with the grid (Section 3.4; Section 4, 2nd Para).

9. As per claim 6, Fortes does not specifically teach wherein providing grid resources comprises: determining an unallocated portion of grid resources and allocating the unallocated portion of the grid resources to the first logical partition.

However, Fortest does teach providing grid resources to logical partitions. And since it would have been obvious to one having ordinary skill in the art of grid computing that the purpose of the grid is to allocate free/unallocated grid resources to needed receivers to run tasks, it would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to have the Fortes' logical partition be the

Art Unit: 2195

receiver that receives unallocated portion of grid resources in order to run the applications that its client requests.

10. As per claim 8, Camble teaches wherein providing on-demand resources comprises: determining that use of partition resources of the first partition has at least reached a partition utilization threshold; determining that sufficient resources are unavailable from the grid resources; and allocating an unallocated portion of the on-demand resources to the logical partition (Para 26: the amount of resources allowed by the license key corresponds to the threshold, which if it is exceeded, the on-demand resources are allocated to the logical partition).

11. As per claims 9, Camble teaches wherein providing on-demand resources further comprises: determining that usage of the grid resources has at least reached a grid utilization threshold; requesting an enablement code to enable the on-demand resources; and allocating an unallocated portion of the on-demand resources to the logical partition (Para 26).

12. Claims 7, 10, 11-13, 31-35, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over A case for Grid Computing On Virtual Machines, Fortes et al (hereafter Fortes) in view of Camble et al., Pub No. 2003/0135580 (hereafter Camble) further in view of Lumelsky et al., Patent No. 6,460,082 (hereafter Lumelsky).

13. Lumelsky was cited in the previous office action.

14. As per claims 7, 10, 31, Camble teaches a method for expanding resources available to logical partitions on a single computer associated with a client, the method comprising:

allocating on-demand resources to the first logical partition after the first logical partition reaches a utilization threshold for the previously allocated resources, wherein the on-demand resources are available to the single computer, and access to the on demand resources is controlled by a manufacturer of the single computer (Para 26: the amount of resources allowed by the license key corresponds to the threshold, which if it is exceeded, the on-demand resources are allocated to the logical partition);

billing the client for usage of the on-demand resources (Para 26).

Camble does not teach registering resources with a grid as grid resources, wherein the grid resources are available for use by a plurality of logical partitions and allocating grid resources to a first logical partition after utilization of partition resources of the first logical partition reaches a first utilization thresholds.

Fortes teaches registering resources with a grid as grid resources, wherein the grid resources are available for use by a plurality of logical partitions for the purpose of sharing resources across virtual clusters (Section 2.2 Advantages, Security and Isolation, Resource Control; Section 3.2, subsection Application Perspective; Section 3.4: each VM is a logical partition and the provider has control over how much resource of the VM is available to the user based on its scheduling constraints; logical users correspond to a plurality of logical partitions associated with the grid).

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of Camble with a grid as grid resources, wherein the grid resources are available for use by a plurality of logical partitions, as taught by Fortes, because it allows sharing resources across virtual clusters.

Fortes does not specifically teach a first utilization threshold where allocating grid resources to a first logical partition after utilization of partition resources of the first logical partition reaches a first utilization thresholds.

However, Lumelsky teaches allocating grid resources to the logical partition after utilization of partition resources by the logical partition reaches a first utilization threshold (Column 12, lines 38-45; Column 14, lines 35-43, 58-67) for the purpose of establish an overflow pool incase more resources are needed to provide run-time resource compensation.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to combine the teachings of Camble in view of Fortes with allocating grid resources to the logical partition after utilization of partition resources by the logical partition reaches a first utilization threshold, as taught by Lumelsky, because it allows the establishment of an overflow pool incase more resources are needed to provide run-time resource compensation.

15. As per claim 11, Camble in view of Fortes further in view of Lumelsky does not teaches billing the client for usage of the grid resources to offset a cost associated with

Art Unit: 2195

enabling the on-demand resources. However, since Camble teaches billing for on-demand resources, it would have been obvious for one having ordinary skill in the art at the time of the applicant's invention to bill the client for any type of resources, including grid resources.

16. As per claim 12, Camble teaches the method of claim 10, wherein billing the client for usage of the on-demand resources comprises billing the client for the on-demand resources allocated to the first logical partition based upon actual usage of the on-demand resources (Column 26).

17. As per claim 13, Lumelsky teaches the method of claim 10, wherein billing the client for usage of the resources comprises billing the client for the resources allocated to the first logical partition based upon a quantity of the resources allocated and the amount of time for which the quantity of the on-demand resources are allocated. (*Figure 2, unit 152: it has a cost per minute associated with it.*). Camble teaches on-demand resources may be allocated to the logical partitions (Para 26).

18. As per claim 32, Camble teaches wherein providing on-demand resources comprises: determining that use of partition resources of the first partition has at least reached a partition utilization threshold; determining that sufficient resources are unavailable from the grid resources; and allocating an unallocated portion of the on-demand resources to the logical partition (Para 26: the amount of resources allowed by

Art Unit: 2195

the license key corresponds to the threshold, which if it is exceeded, the on-demand resources are allocated to the logical partition).

19. As per claim 33, Lumelsky further teaches the threshold comprising an amount of resources used during a predetermined amount of time. (*Column 8, lines 39-60: resource usage is fixed to a number of time intervals allowed for usage.*)

20. As per claims 34, 37, Camble teaches a first fee and a second fee. (*Para 19, lines 11-12; Para 21, lines 1-6*).

21. As per claim 35, Camble in view of Fortes further in view of Lumelsky does not specifically teach wherein at least one of the first fee and the second fee vary based on a factor chosen from the group consisting of a time of day and a time of year. However, it would have been obvious to one having ordinary skill in the art of computing resource provisioning to vary to the fee according to demands and needs for the purpose of maximizing profits over time.

Response to Arguments

22. Applicant's arguments with respect to claims 1-2, 4-13, 30-38 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MENGYAO ZHE whose telephone number is (571)272-6946. The examiner can normally be reached on Monday Through Friday, 7:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lewis A. Bullock, Jr./

Supervisory Patent Examiner, Art Unit 2193